Kerto® LVL

FAST, LIGHT, GREEN

For load-bearing applications

ATS BUILDING PRODUCTS

BUILD BETTER WITH ATS

A COMMITMENT TO THE ENVIRONMENT

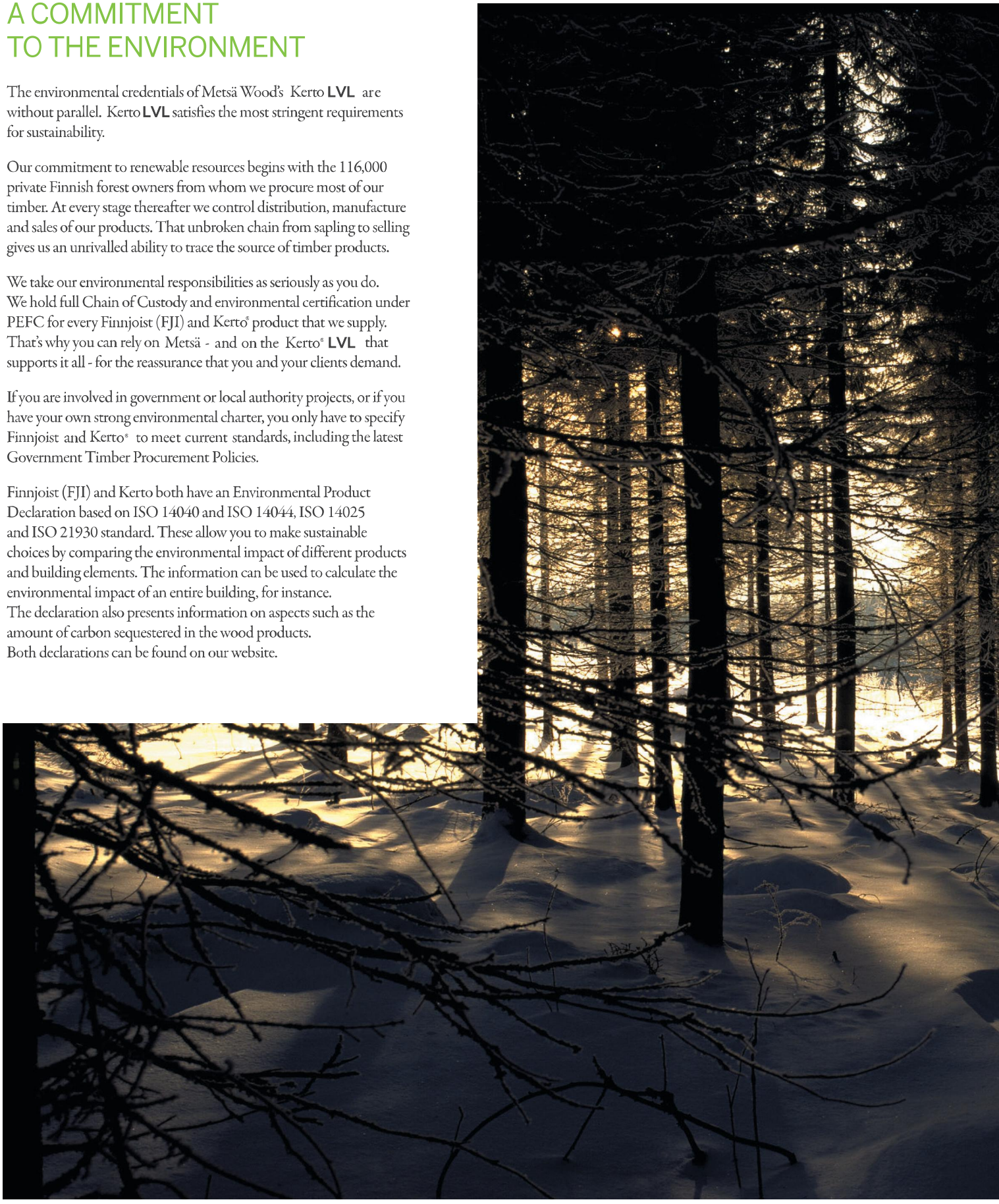
The environmental credentials of Metsä Wood's Kerto **LVL** are without parallel. Kerto **LVL** satisfies the most stringent requirements for sustainability.

Our commitment to renewable resources begins with the 116,000 private Finnish forest owners from whom we procure most of our timber. At every stage thereafter we control distribution, manufacture and sales of our products. That unbroken chain from sapling to selling gives us an unrivalled ability to trace the source of timber products.

We take our environmental responsibilities as seriously as you do. We hold full Chain of Custody and environmental certification under PEFC for every Finnjoist (FJI) and Kerto® product that we supply. That's why you can rely on Metsä - and on the Kerto® **LVL** that supports it all - for the reassurance that you and your clients demand.

If you are involved in government or local authority projects, or if you have your own strong environmental charter, you only have to specify Finnjoist and Kerto® to meet current standards, including the latest Government Timber Procurement Policies.

Finnjoist (FJI) and Kerto both have an Environmental Product Declaration based on ISO 14040 and ISO 14044, ISO 14025 and ISO 21930 standard. These allow you to make sustainable choices by comparing the environmental impact of different products and building elements. The information can be used to calculate the environmental impact of an entire building, for instance.
The declaration also presents information on aspects such as the amount of carbon sequestered in the wood products.
Both declarations can be found on our website.



CONTENTS

Kerto® LVL

Kerto® LVL combines excellent technical performance with ease of use. Its essential qualities include strength, dimensional stability and light weight. It is an ideal choice for all types of construction projects – renovation, new buildings, prefabricated houses and elements.

Kerto LVL beams can be used both as horizontal and vertical bearers in various construction applications.

Kerto LVL has excellent strength-to-weight ratio which allows long spans with minimal deflection. Installation can be carried out without any heavy machinery, even in confined spaces.

APPLICATIONS

Structural applications:

- Beams and headers
- Lintels
- Floor joists
- Rafters and ridge beams
- Truss chords
- Studs and columns
- Portal frames
- Components for roof, floor and wall elements

Industrial applications:

- Industrial and heavy duty door frames
- Concrete formwork
- Scaffolding

MAJOR ADVANTAGES

- **Strong and rigid**
- **Excellent strength-to-weight ratio**
- **Long spans with minimal deflection**
- **Dimensional stability improved against warp and twist**
- **Great work-a-bility and quick to install**
- **Easy to fasten, staple, screw, nail and drill using conventional woodworking tools**
- **Ensures material efficiency with customised product dimensions**
- **Easy to design with free Finnwood design software**
- **Made of sustainable northern wood and PEFC (PEFC/02-31-03) certified**
- **Kerto LVL (1 m^3) contains on average stored carbon equivalent to 783 kg CO_2**

MANUFACTURING

Kerto® LVL products are manufactured in Lohja and Punkaharju Kerto LVL mills in Finland. The commercial production of Kerto LVL started in 1981 in Lohja. Metsä Wood is the first LVL manufacturer in Europe and has still the largest annual LVL production capacity in Europe.

Wood supply

Metsä Wood mills in Finland have only one roundwood supplier, Metsä Forest, belonging to the same Metsä Group. Most of the wood Metsä Group uses comes from family-owned forests. All the used wood is traceable and comes from certified or controlled forests.

Metsä Group's wood tracing systems are certified and verified according to PEFC and FSC® Chain of Custody requirements. Kerto LVL products are PEFC certified as standard and there is limited availability of FSC certified products.

Forest management certification
- PEFC as standard, logo licence registration number: PEFC/02-31-03
- Limited availability of FSC, FSC licence code: FSC-CO14476

Production process

Kerto LVL is manufactured from 3.0 mm thick rotary peeled and strength graded softwood veneers. The veneers are bonded with weather and boil-resistant phenol formaldehyde adhesive. The main wood raw material is spruce (Picea abies). Products may also contain small amounts of pine (Pinus sylvestris).

The logs are measured, debarked and soaked in warm water at least for 24 hours. The soaked logs are cut into peeling logs and rotary peeled into 3.0 mm thick continuous veneer mat. The veneer mat is then cut into sheets. Veneer sheets are dried in temperature of 180-200 °C. Dried veneers are graded based on strength and visual quality. Adhesive is spread on top of the veneers and the veneers are laid up as a continuous billet. The billet is pre pressed to make sure that the adhesive spreads evenly. The billet is hot pressed in temperature of 135-150 °C. During hot pressing the adhesive cures and hardens. The billet is cut to order specific dimensions. Ready products are packed in plastic wraps and delivered to customers.

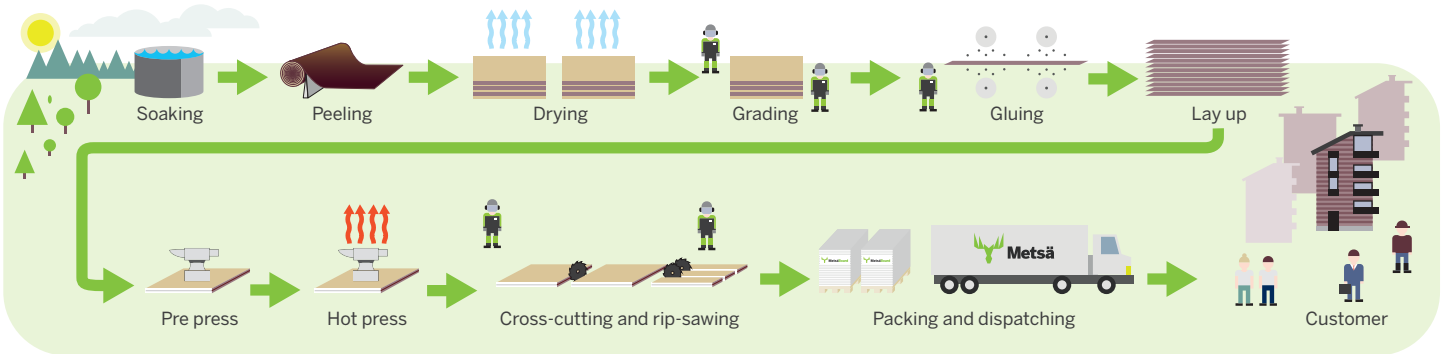
Kerto LVL production is managed according to the principles of standard ISO 9001. The quality and the constancy of performance of the product is controlled by regular third party inspections and audits.

TABLE 1. KEY FIGURES OF KERTO LVL PRODUCTION

	LOHJA	PUNKAHARJU
Number of current production lines	2	3
Start-up year	1998, 2017	2001, 2006, 2019
Annual production capacity	95,000 m³	180,000 m³
Maximum product length	25 m	24.5 m
Maximum product width	1.8 m	2.5 m
Products	Kerto LVL S-beam, S-beam PLUS, Q-panel, Qp-beam, L-panel and T-stud	Kerto LVL S-beam, Q-panel, Qp-beam, L-panel, T-stud and Kate

Kerto® LVL

Manufactured by Metsa Wood, Kerto® LVL is a unique product which not only serves as the flange material for our Finnjoist (FJI), it is the perfect choice for long spans, rimbeams, lintels and high-loads structural applications. Kerto® LVL is CE marked, carries BBA certification and PEFC environmental accreditation.

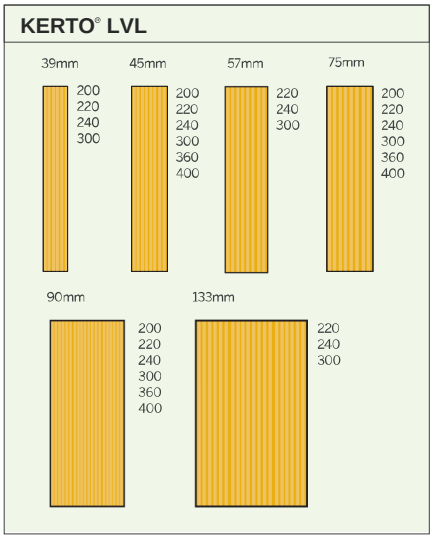


Kerto LVL is produced from rotary-peeled 3mm graded softwood veneers, which are then glued together to form a continuous 1.8 or 2.5 metre wide product. The 21mm to 90mm thick sheets are then further machined to the finished dimensions.

The result is an engineered wood product that maintains the natural beauty of wood whilst being strong enough for most types of construction applications.

Produced so that all its veneers are laid with the grain in the same direction, Kerto LVL delivers a product perfect for beams whatever the specification and achieving long spans with minimal deflection. Kerto LVL (up to a maximum thickness of 75mm) is coated with Metsa Wood's WeatherGuard.

KERTO® LVL WITH LONGITUDINALLY LAID VENEERS



NOTES:

1. Kerto LVL is supplied WeatherGuard coat with the exception of 90mm and 133mm which is uncoated.
2. Kerto LVL is supplied unsanded faces.
3. Other sizes and finishes available on special order.
4. Stock sizes up to 12m Other sizes available on request.

KERTO® LVL DESIGN VALUES

E13.2 Properties		
Modulus of Elasticity	E	13200 MPa
Modulus of Rigidity	G	600 MPa
Joint Group	JD	JD4
Stress Grade	SD	F14
Mean Density	ρ	510 kg/m3
Moisture Content	MC	8-10%
Bending (on Edge)	f'b	42 MPa
Bending (on Flat)	f'b,y-y	50 MPa
Tension // (parallel to grain)	f't	35 MPa
Tension ⊥ (perpendicular to grain)	f'tp	0.8MPa
Compression // (parallel to grain)	f'c	33 MPa
Bearing ⊥ (perpendicular to grain - edgewise)	f'bp	10 MPa
Bearing ⊥ (perpendicular to grain - flatwise)	f'bf	4.9 MPa
Shear in Beam	f's	4.2 MPa
Shear (on Flat)	f's,y-y	2.3 MPa
Shear at Joint (On Edge)	f'sj	5 MPa
Shear at Joint (on Flat)	f'sf	3 MPa

E14 Properties		
Modulus of Elasticity	E	14000 MPa
Modulus of Rigidity	G	700 MPa
Joint Group - Bolts, through the face, perp to grain	JD	JD3
Joint Group - Bolts, through the face, parallel to grain		JD2
Joint Group - Bolts, through the edge (M8 or smaller)		JD1
Joint Group - Screws, laterally loaded, into the face and edge		JD3
Joint Group - Screws, withdrawal axially loaded, into the face and edge		JD3
Joint Group - Nails, laterally loaded, into the face and edge		JD3
Joint Group - Nails, withdrawal axially loaded, into the face and edge		JD4
Stress Grade	SD	F17
Mean Density	ρ	590 kg/m3
Moisture Content	MC	8-10%
Bending (on Edge)	f'b	50 MPa
Bending (on Flat)	f'b,y-y	60 MPa
Tension // (parallel to grain)	f't	38 MPa
Tension ⊥ (perpendicular to grain)	f'tp	1 MPa
Compression // (parallel to grain)	f'c	36 MPa
Bearing ⊥ (perpendicular to grain - edgewise)	f'bp	11 MPa
Bearing ⊥ (perpendicular to grain - flatwise)	f'bf	5.9 MPa
Shear in Beam	f's	4.2 MPa
Shear (on Flat)	f's,y-y	2.3 MPa
Shear at Joint (On Edge)	f'sj	5.4 MPa
Shear at Joint (on Flat)	f'sf	3.1 MPa

NOTES:

1. Tested in accordance with European and ASTM test methods, aligning with Australian methods (AS/NZS 4357.2 and AS/NZS 4063.1).
2. Design characteristic values provided for use with AS 1720.1.
3. Evaluation of design characteristic values conducted according to AS/NZS 4063.2.
4. Joint group defined based on density according to AS 1649.
5. Stress grade defined per AS/NZS 4357.0 and AS 1720.1.
6. Certificates 2012001020-1 and 2012001020-2 granted by access UTS Pty Limited for LVL.

Kerto® LVL

TOLERANCES AND MEASURING

Kerto® LVL products are manufactured according to nominal dimensions defined in the purchasing order. Small deviation from the nominal dimensions occur due to the wood raw material and the production process. Dimensional tolerances give the limits for the deviation.

Tolerances for Kerto LVL products are presented in table 1 and figure 1 illustrates the dimensions. Tolerances are given in moisture content of 8-12%. The moisture content on delivery is about 8-10%. Please note that moisture content of the products affects the dimensions. If moisture content deviates from the reference moisture content of 8-12%, the product may swell or shrink outside the given tolerances.

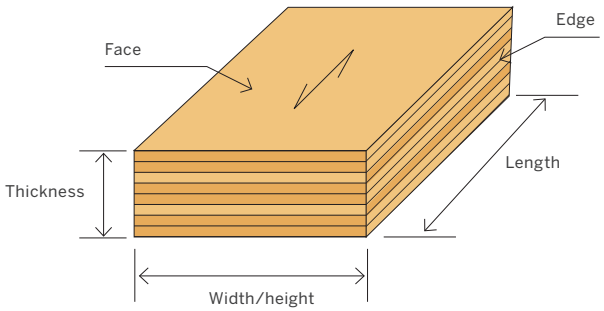


Figure 1. Dimensions of Kerto LVL

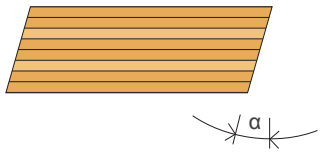


Figure 2. Deviation angle of the cross-section

TABLE 1. TOLERANCES FOR KERTO LVL PRODUCTS

	SIZE	MIN.	MAX.
Thickness	$t \leq 27$ mm	- 1.0 mm	+ 1.0 mm
	27 mm < $t \leq 57$ mm	- 2.0 mm	+ 2.0 mm
	$t > 57$ mm	- 3.0 mm	+ 3.0 mm
Width/height	< 400 mm	- 2.0 mm	+ 2.0 mm
	≥ 400 mm	- 0.50 %	+ 0.50 %
Length	All	- 5.0 mm	+ 5.0 mm
Deviation of the cross-section from a right angle	All	- 1.1°	+ 1.1°

In moisture content of 10 ±2 %. Special tolerances are available on request.

SANDING OF KERTO LVL AFFECTS PRODUCT THICKNESSES

- Optical sanding reduces the original nominal thickness by approximately 2 mm. The standard thickness tolerances apply to the sanded nominal thickness. Structural design shall be made according to the sanded nominal thickness.
- Calibrated sanding reduces the original nominal thickness by approximately 3 mm. The thickness tolerance of calibrated sanded products is +/- 0.5 mm from the target thickness. The dark glue line may become visible as it is allowed to sand through the face veneers. Structural design shall be made according to the sanded nominal thickness.

MEASURING INSTRUCTIONS

Due to the raw material and production process the dimensions of Kerto LVL products slightly vary within the product especially in large beam and panel sizes. Therefore it is recommended to measure the dimensions from several locations of the product.

Figure 3 and table 2 illustrate the recommended measurement locations. Width/height is measured from two locations near the ends of the product. Length is measured from one or two locations depending on the width of the product.

It is recommended to use calliper with minimum accuracy of 0.1 mm for measuring the thickness of the products. Measuring tape with accuracy of 1 mm is suitable for width and length measurements.

TABLE 2. MEASUREMENTS

	PRODUCT SIZE	NUMBER OF MEASUREMENTS	LOCATION OF MEASUREMENTS
Thickness	All	3	From both ends and middle of the product length
Width/height	All	2	About 100 mm from the product ends
Length	Width ≤ 400 mm	1	Along the centre line
	Width > 400 mm	2	Lengthwise, about 50 mm from the product edges

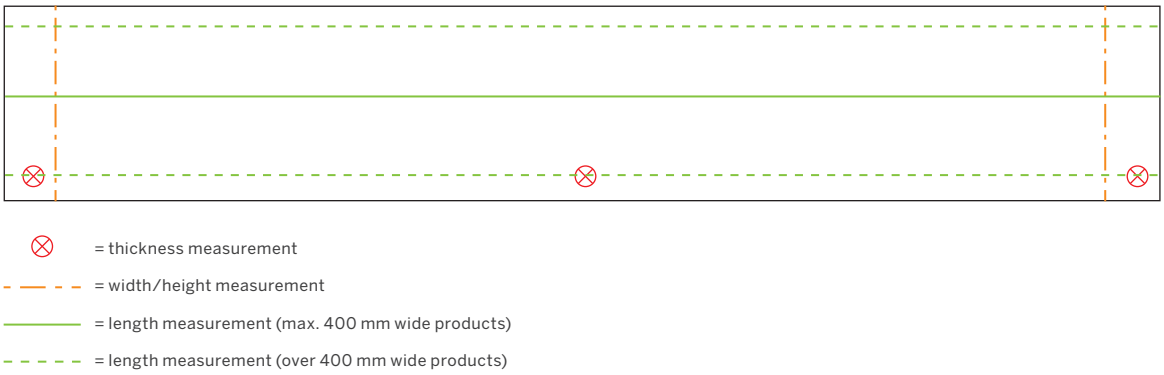


Figure 3. Measurement locations

DEFINITION OF STRENGTH AND STIFFNESS ORIENTATIONS

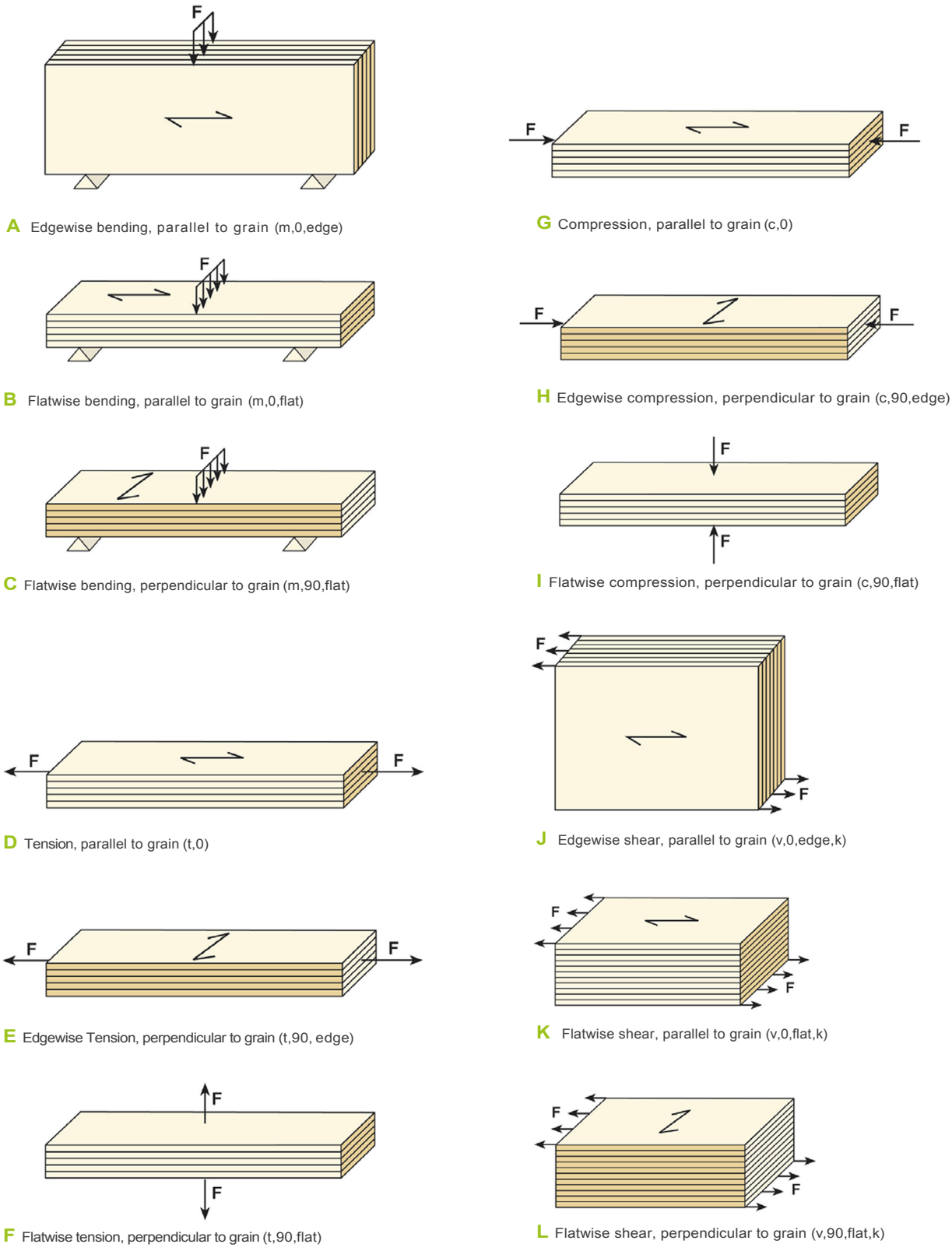


Figure 1. Strength and stiffness orientations (grain direction of the face veneer ⟷)

MULTIPLE MEMBER CONNECTIONS

General Notes

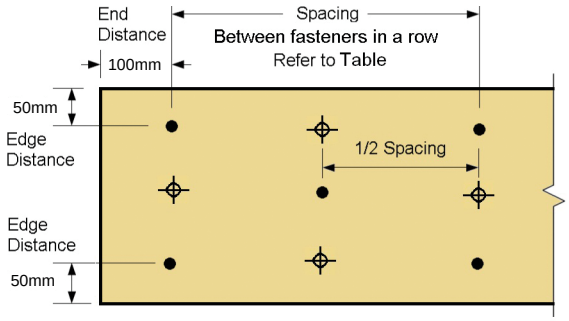
1. Maximum loads for fasteners are shown in the table on the facing page.
2. Connections are for uniform loads listed in this product guide. Concentrated or other load conditions require special design.
3. Make sure the load capacity of the beam meets or exceeds the load capacity of the fasteners.
4. 4 – ply beams must be top loaded or loaded equally from both faces. For other load conditions, special design is required to avoid torsional stresses in the beam.
5. Do not use more than 4 – plies for multiple member beams.

Multiple Member Connections for Top Loaded beams

1. Load must be equally distributed to each ply of the multiple member beam.
2. Use the minimum connections; nails, bolts or screws from the SIDE LOADED table.

Multiple Member Connections for Side Loaded beams

1. Loads may be applied to either or both faces of the beam. Make sure load applied to either face does not exceed the value in the table.
2. Maximum Uniform Loads (PLF) shown in the table are for normal load duration.
   Appropriate Load Duration Factors may be applied to the values as permitted by the building code.



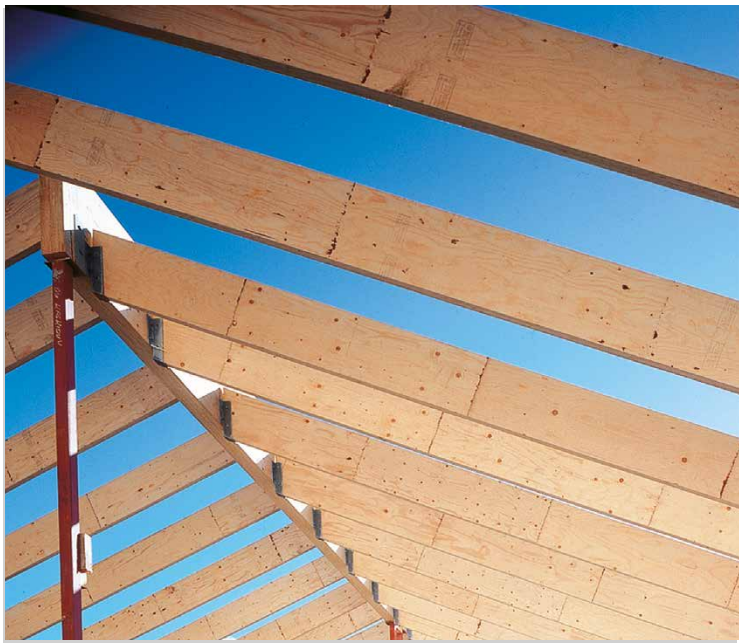
INSTALLATION NOTES:

Nails: Offset nails at least 50mm from nails in adjacent ply to avoid splitting.

Screws:

● Head side ⌖ Point side

1. Drive screws from opposite face between screws in row as shown.
2. Install screws according to manufacturer's instructions.
3. SDW screws. End distance = 150mm



Kerto® LVL

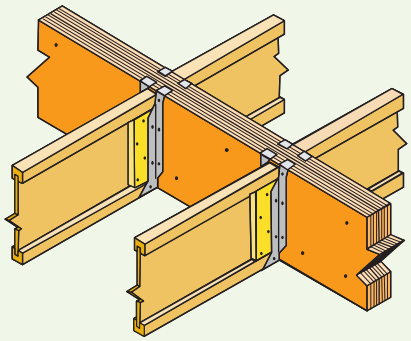
KERTO LVL MULTIPLE PLY BEAMS

SIDE LOADED

Joists applied to one or both sides of the beam. Select a suitable nailing or bolting pattern from the table on page 17 to suit the applied load.

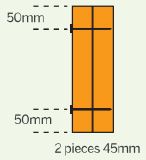
Side loads are not recommended for 180mm wide beams unless applied equally to both beam faces.

SIDE LOADED



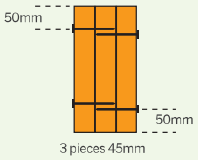
SIDE LOADED FOR 90mm & 135mm WIDE BEAMS

90mm wide beams.

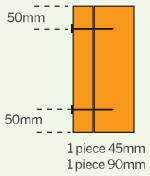


Detail A

135mm wide beams.

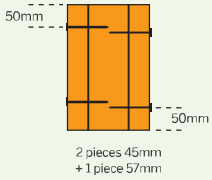


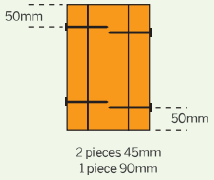
Detail B



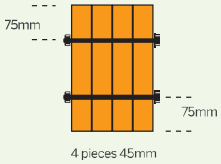
Detail C

SIDE LOADED FOR 180mm WIDE BEAMS

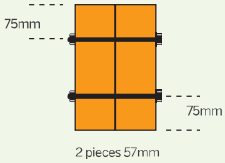


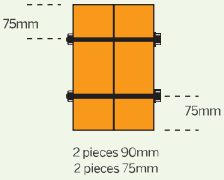


Detail D



Detail E





Detail F

Side Loads are not recommended for 180mm beams (or 4 Ply - 39mm) unless equally applied to both faces.

MAXIMUM TOTAL UNIFORM LOAD FROM EITHER SIDE FOR SIDE LOADED BEAMS (kN/m)

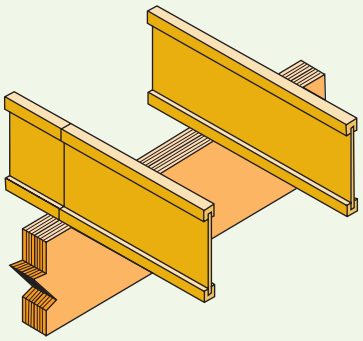
DETAIL REF.	3.35 x 90mm NAILS 2 R	3 R	4 R	3.75 x 90mm NAILS 2 R	3 R	4 R	4.0 x 90mm NAILS 2 R	3 R	4 R	M12-4.6 GRADE BOLTS IN 2 R 600mm c/c	300mm c/c
	NAILS AT 300mm c/c			NAILS AT 300mm c/c			NAILS AT 300mm c/c				
A	3.88	5.82	7.76	4.67	7.01	9.34	5.19	7.79	10.38	8.70	17.40
B	5.82	8.73	11.64	7.01	10.51	14.01	7.79	11.68	15.57	13.48	26.96
C	5.82	8.73	11.64	7.01	10.51	14.01	7.79	11.68	15.57	9.79	19.58
D	7.76	11.64	15.52	9.34	14.01	18.68	10.38	15.57	20.76	17.92	35.84
E	-	-	-	-	-	-	-	-	-	13.48	26.96
F	-	-	-	-	-	-	-	-	-	16.74	33.48

1. All values are for medium term loading.
2. Using spacing patterns as shown.
3. 39mm Kerto LVL may be used in place of 45mm for details A, B and E.
   When using multiple ply 39mm Kerto LVL. 75mm long nails may be used in place of 90mm long nails.
4. 133mm Kerto LVL must only be used as a single ply member.

TOP LOADED

For a downstand beam with joists above, fix plys using 3.35 x 90mm nails at 300mm c/c. For discontinuous joists, if loads are not applied equally on each ply, please refer to the table on side loaded beams.

TOP LOADED

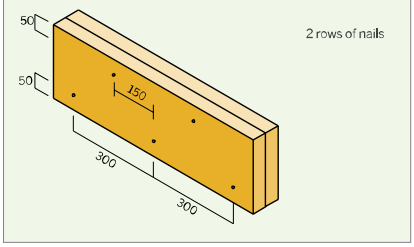


TOP LOADED BEAM

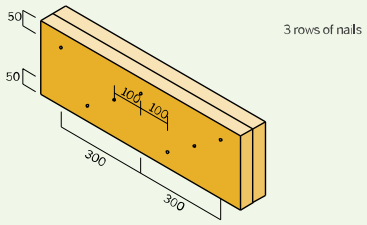
ROWS OF NAILS AT 300 c/c	DEPTH
2	<300
3	300 - 450
4	450 - 600

NAIL AND BOLT SPACING FOR TOP AND SIDE LOADED BEAMS

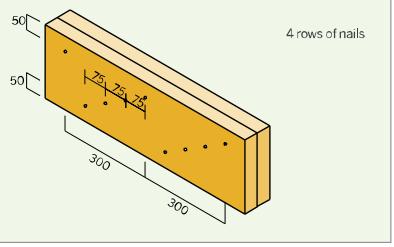
N2 2 ROWS OF NAILS



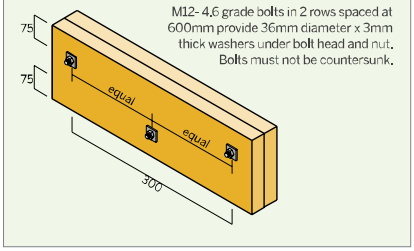
N3 3 ROWS OF NAILS



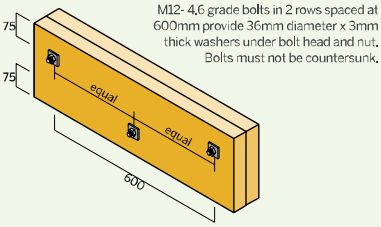
N4 4 ROWS OF NAILS



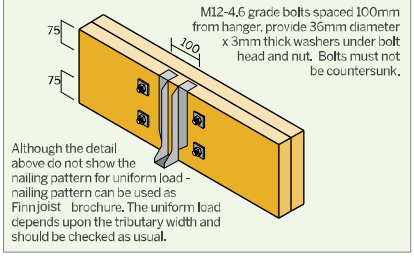
B300



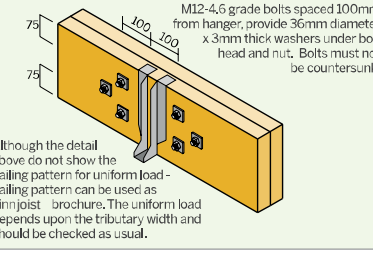
B600



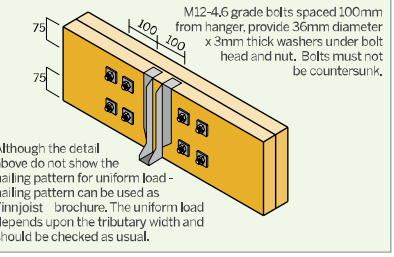
B4 FOR LOAD <10KN - 4 BOLTS



B6 FOR LOAD <18KN- 6 BOLTS



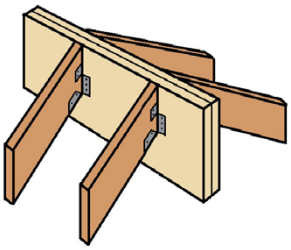
B8 FOR LOAD <25KN - 8 BOLTS



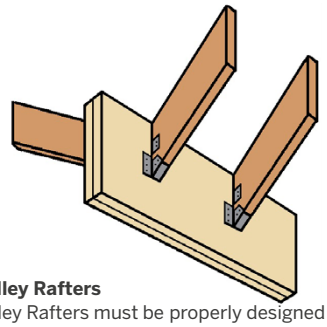
All measurements in mm.

Kerto® LVL

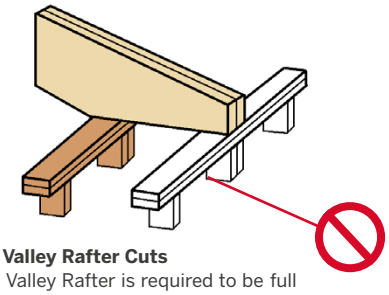
INSTALLATION DETAILS FOR ROOFS



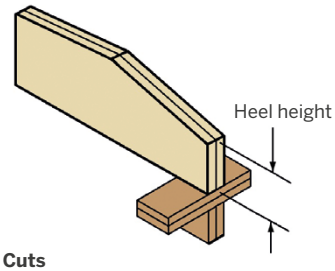
Ridge Beam
Ridge Beam must be properly designed and supported. Common rafters and connections must be properly designed.



Hip & Valley Rafters
Hip & Valley Rafters must be properly designed and supported. Common rafters and connections must be properly designed.



Hip & Valley Rafter Cuts
Hip or Valley Rafter is required to be full depth (uncut) at inside edge of bearing.



Scarf Cuts
Scarf Cuts are permitted for Kerto LVL beams as specified in the table.
Scarf cuts may be specially designed by software or other competent analysis.

MAXIMUM REACTION FOR SCARF CUTS (kN)

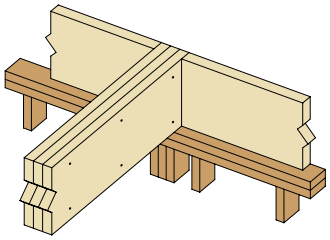
BEAM DEPTH	140mm	190mm	230mm	240mm	290mm	300mm	360mm	400mm	450mm
SLOPE RANGE	**35mm Kerto LVL beam**								
14° to < 37°	4.70	6.20	7.90	8.11	9.61	10.14	11.96	13.69	15.43
37° to 45°	5.04	6.65	8.49	8.73	10.34	10.91	12.86	14.68	16.52
SLOPE RANGE	**45mm Kerto LVL beam**								
14° to < 37°	5.48	7.23	9.22	9.47	11.22	11.84	13.95	15.94	17.94
37° to 45°	5.89	7.76	9.91	10.18	12.05	12.70	14.98	17.14	19.28

MINIMUM HEEL HEIGHT FOR SCARF CUTS (mm)

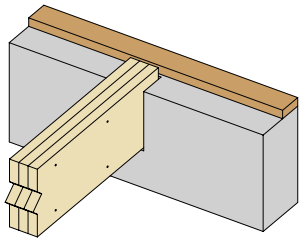
BEARING RANGE	**35mm & 45mm Kerto LVL beam Slope: 14° to < 37°**								
75mm to < 135m	65mm	90mm	120mm	145mm	150mm	160mm	195mm	225mm	255mm
135mm or more	50mm	75mm	105mm	110mm	140mm	145mm	180mm	210mm	240mm
BEARING RANGE	**35mm & 45mm Kerto LVL beam Slope: 37° to 45°**								
75mm to < 135mm	50mm	55mm	85mm	90mm	115mm	125mm	155mm	185mm	275mm
135mm or more	50mm	50mm	50mm	50mm	70mm	80mm	115mm	145mm	175mm

Reactions are for 1 - ply Kerto LVL beam. For 2 - plies multiply by 2. For 3 - plies multiply by 3
Maximum Reactions are for Bearings and Minimum Heel heights shown.
Maximum Reactions are for Floor loads (100%). Specific analysis for roof loads may produce higher reactions.

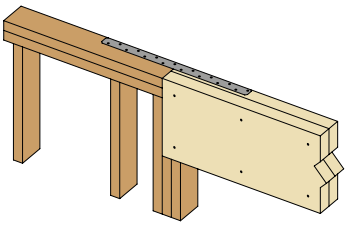
INSTALLATION DETAILS FOR FLOORS



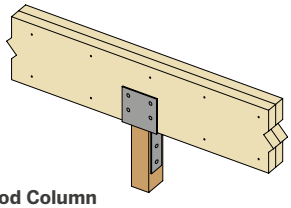
Bearing at Wall
Kerto LVL beam may require full width of wall plate for bearing.
Rim board or blocking must be provided for lateral restraint to prevent rotation at support.



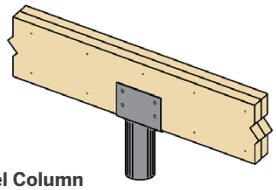
Bearing at Concrete Wall
Protect Kerto LVL beam from direct contact with concrete as required by building code.
Beam connection to wall must be designed and provided as required by building code.



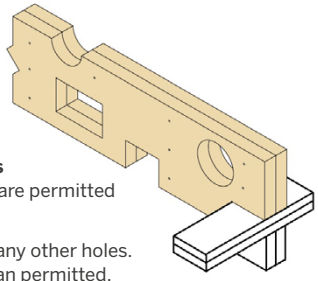
Bearing for Headers
Provide adequate bearing for Kerto LVL beam as specified in this product guide or designed by software or other competent analysis.
Provide properly designed strap if top plate is not continuous over header.



Bearing at Wood Column
Provide properly designed column cap to carry Kerto LVL beam reaction.
Column cap must provide adequate lateral restraint to prevent rotation at support or other adequate restraint must be provided.



Bearing at Steel Column
Provide properly designed column cap to carry Kerto LVL beam reaction.
Column cap must provide adequate lateral restraint to prevent rotation at support or adequate restraint must be provided by framing or other means.



Notches and Holes
Only circular holes are permitted

DON'T:
Cut rectangular or any other holes.
Drill larger holes than permitted.
Drill holes except in permitted zones.
Notch Kerto LVL beams.
Cope or notch beams over support.

Kerto® LVL

KERTO® LVL E13.2 SPAN TABLES

Items not included in these Span Tables

The following items are considered outside the scope of these Span tables, and shall be confirmed/prepared by others:

1. Support details, adequate anchorage against wind uplift, and overall structural stability of the construction.
2. Manufacture and installation details of the LVL beams, including requirements and means for jointing (also known as laminating) multiple LVL beams.
3. Details, requirements and instructions for on-site cutting, notching, drilling and general installation/connection details of LVL beams.
4. Fire and chemical resistance details and considerations.
5. Measures and considerations for durability and exposure to moisture.
6. Details for suitable transport, storage, and handling.
7. Evaluation and verification of the manufacture and characterization of the LVL Beams and associated material properties.

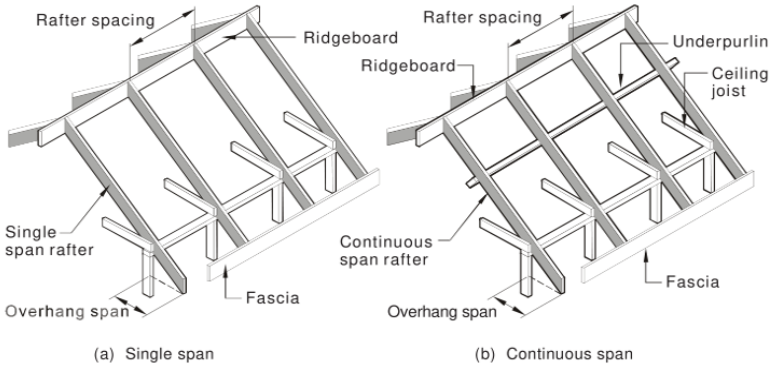
June 2025

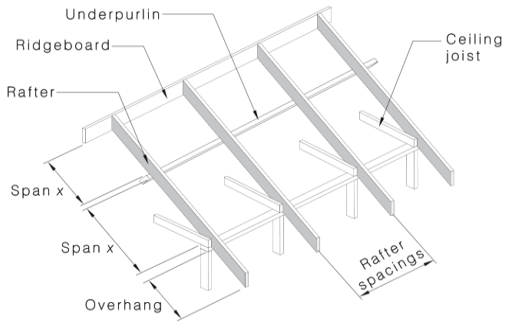
Metsä

KERTO LVL E13.2: RAFTERS

Note:

1. Rafters supporting roof masses up to 90kg/m2. As per AS 1720.3 Table 2.2.2.2(A)
2. AS 4055 Wind Classification N1-N3. The roof pitch shall not exceed 35°, as per AS 1720.3.
3. The calculated Spans do not include verandahs, as defined in AS 1720.3
4. Overhangs assume the rafter is notched (birdsmouth). Maximum birdsmouth depth is equal to 30% of rafter depth.
5. Overhang spans should not exceed one half of the installed backspan. The chosen backspan and overhang configuration shall be confirmed as compliant with the serviceability criteria outlined in AS 1720.3. Overhangs may need to be tied back to the wall frame (according to AS 1684.2) to comply with the serviceability criteria outlined in AS 1720.3.
6. Spans and Lengths are considered to be measured along the Length of the Rafter.
7. Overhang limits consider rafter ends are supported by a structural fascia board with minimum stiffness of 86x109 Nmm2
8. The span lengths represent the Effective Span Length, as defined in AS 1720.3. A continuous span only applies when the smaller of the spans is no less than half the larger span. Where this does not apply; both spans are to be treated as singles spans or further design analysis is required.
9. Bearing support lengths for the rafters shall be determined by the responsible Professional Engineer for the application.
10. The spans are based on a capacity factor (ø) of 0.95, and for Category 1 according to Table 2.1 in AS1720.1





Metsa Kerto LVL, rafters in-build application.

Kerto® LVL SPAN TABLES

Roof Rafters : Wind Classification N1 - N3																	
Member size D x B (mm)	Roof Mass (kg/m²)	Rafter Spacing								Rafter Spacing							
		450		600		900		1200		450		600		900		1200	
		Maximum recommended Rafter Single Span and Cantilever (m)								Maximum recommended Rafter Continuous Span and Cantilever (m)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
90 x 36	10	2.8	0.5	2.6	0.5	2.4	0.4	2.3	0.4	3.6	0.5	3.3	0.5	3.0	0.4	2.8	0.4
	20	2.8	0.5	2.6	0.5	2.4	0.4	2.3	0.4	3.6	0.5	3.3	0.5	3.0	0.4	2.8	0.4
	40	2.6	0.5	2.4	0.5	2.1	0.5	1.9	0.5	3.5	0.5	3.2	0.5	2.8	0.5	2.6	0.5
	60	2.3	0.6	2.1	0.6	1.8	0.5	1.7	0.5	3.1	0.6	2.8	0.6	2.5	0.5	2.2	0.5
	90	2.0	0.6	1.8	0.5	1.6	0.4	1.4	0.4	2.7	0.6	2.5	0.5	2.2	0.4	2.0	0.4
130 x 36	10	5.4	0.2	4.9	0.2	4.3	0.2	3.9	0.2	6.7	0.2	5.8	0.2	4.7	0.2	4.1	0.2
	20	4.6	0.7	4.2	0.7	3.7	0.6	3.4	0.6	6.1	0.7	5.7	0.7	4.9	0.6	4.2	0.6
	40	3.7	0.8	3.4	0.8	3.0	0.7	2.8	0.7	5.0	0.8	4.6	0.8	4.1	0.7	3.7	0.7
	60	3.3	0.9	3.0	0.8	2.7	0.8	2.4	0.7	4.5	0.9	4.1	0.8	3.6	0.8	3.3	0.7
	90	2.9	0.8	2.7	0.8	2.3	0.7	2.1	0.6	3.9	0.8	3.6	0.8	3.1	0.7	2.8	0.6
150 x 36	10	6.1	0.2	5.7	0.2	5.0	0.2	4.5	0.2	7.1	0.2	6.4	0.2	5.2	0.2	4.5	0.2
	20	5.2	0.8	4.8	0.8	4.3	0.3	4.0	0.3	6.7	0.8	6.2	0.8	5.3	0.3	4.7	0.3
	40	4.3	0.9	4.0	0.9	3.5	0.8	3.2	0.8	5.8	0.9	5.3	0.9	4.7	0.8	4.3	0.8
	60	3.8	1.0	3.5	1.0	3.1	0.9	2.8	0.8	5.1	1.0	4.7	1.0	4.1	0.9	3.8	0.8
	90	3.4	1.0	3.1	0.9	2.7	0.8	2.4	0.7	4.5	1.0	4.1	0.9	3.6	0.8	3.3	0.7
170 x 36	10	6.6	0.2	6.3	0.2	5.6	0.2	5.1	0.2	7.4	0.2	6.7	0.2	5.7	0.2	4.9	0.2
	20	5.9	0.4	5.4	0.4	4.9	0.3	4.5	0.3	7.1	0.4	6.5	0.4	5.7	0.3	5.1	0.3
	40	4.9	1.1	4.5	1.0	3.9	1.0	3.6	0.9	6.4	1.1	6.0	1.0	5.3	1.0	4.8	0.9
	60	4.3	1.2	3.9	1.1	3.5	1.0	3.2	0.9	5.8	1.2	5.3	1.1	4.7	1.0	4.3	0.9
	90	3.8	1.1	3.5	1.0	3.0	0.9	2.8	0.8	5.1	1.1	4.7	1.0	4.1	0.9	3.7	0.8

Roof Rafters : Wind Classification N1 - N3																	
Member size D x B (mm)	Roof Mass (kg/m²)	Rafter Spacing								Rafter Spacing							
		450		600		900		1200		450		600		900		1200	
		Maximum recommended Rafter Single Span and Cantilever (m)								Maximum recommended Rafter Continuous Span and Cantilever (m)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
200 x 36	10	7.4	0.3	7.0	0.2	6.6	0.2	5.7	0.2	7.8	0.3	7.1	0.2	6.2	0.2	5.5	0.2
	20	6.6	0.4	6.2	0.4	5.7	0.3	5.2	0.3	7.5	0.4	6.9	0.4	6.0	0.3	5.5	0.3
	40	5.7	1.3	5.2	1.2	4.6	1.2	4.2	1.1	7.1	1.3	6.5	1.2	5.7	1.2	5.1	1.1
	60	5.0	1.4	4.6	1.3	4.1	1.2	3.7	1.1	6.6	1.4	6.1	1.3	5.4	1.2	4.9	1.1
	90	4.5	1.3	4.1	1.2	3.6	1.0	3.3	0.9	6.0	1.3	5.5	1.2	4.8	1.0	4.4	0.9
240 x 36	10	8.3	0.4	7.9	0.3	6.8	0.3	5.9	0.4	8.2	0.4	7.5	0.3	6.6	0.3	6.0	0.4
	20	7.4	0.5	7.1	0.5	6.5	0.4	6.1	0.4	7.9	0.5	7.3	0.5	6.4	0.4	5.8	0.4
	40	6.5	1.6	6.2	1.5	5.5	1.4	5.1	1.4	7.5	1.6	6.8	1.5	6.0	1.4	5.5	1.4
	60	6.0	1.7	5.5	1.6	4.9	1.4	4.5	1.3	7.1	1.7	6.5	1.6	5.7	1.4	5.2	1.3
	90	5.3	1.6	4.9	1.4	4.3	1.3	3.9	1.1	6.5	1.6	5.9	1.4	5.2	1.3	4.8	1.1
300 x 36	10	9.5	0.5	8.3	0.6	6.7	1.8	5.8	1.7	8.8	0.5	8.0	0.6	7.1	1.8	6.5	1.7
	20	8.6	0.7	8.2	0.6	6.9	0.7	6.0	1.8	8.5	0.7	7.8	0.6	6.8	0.7	6.2	1.8
	40	7.6	2.1	7.2	1.9	6.6	1.8	6.2	1.7	8.0	2.1	7.3	1.9	6.5	1.8	5.9	1.7
	60	7.0	2.1	6.6	2.0	6.0	1.8	5.6	1.6	7.6	2.1	7.0	2.0	6.1	1.8	5.6	1.6
	90	6.5	1.9	6.0	1.8	5.4	1.6	4.9	1.4	6.9	1.9	6.4	1.8	5.6	1.6	5.1	1.4
90 x 45	10	3.2	0.5	3.0	0.5	2.7	0.5	2.6	0.5	4.1	0.5	3.7	0.5	3.4	0.5	3.2	0.5
	20	3.2	0.5	3.0	0.5	2.7	0.5	2.6	0.5	4.1	0.5	3.7	0.5	3.4	0.5	3.2	0.5
	40	2.8	0.6	2.6	0.6	2.2	0.5	2.0	0.5	3.8	0.6	3.4	0.6	3.0	0.5	2.8	0.5
	60	2.5	0.6	2.2	0.6	2.0	0.6	1.8	0.5	3.3	0.6	3.0	0.6	2.7	0.6	2.4	0.5
	90	2.2	0.6	2.0	0.6	1.7	0.5	1.6	0.4	2.9	0.6	2.7	0.6	2.3	0.5	2.1	0.4
130 x 45	10	5.7	0.2	5.3	0.2	4.6	0.2	4.2	0.2	7.2	0.2	6.8	0.2	5.8	0.2	5.0	0.2
	20	4.8	0.8	4.5	0.7	4.0	0.7	3.7	0.7	6.4	0.8	6.0	0.7	5.4	0.7	4.9	0.7
	40	4.0	0.9	3.7	0.8	3.2	0.8	3.0	0.8	5.4	0.9	4.9	0.8	4.4	0.8	4.0	0.8
	60	3.5	1.0	3.2	0.9	2.9	0.8	2.6	0.7	4.8	1.0	4.4	0.9	3.8	0.8	3.5	0.7
	90	3.1	0.9	2.9	0.8	2.5	0.7	2.3	0.6	4.2	0.9	3.8	0.8	3.4	0.7	3.1	0.6
150 x 45	10	6.3	0.2	6.0	0.2	5.3	0.2	4.9	0.2	7.9	0.2	7.5	0.2	6.5	0.2	5.6	0.2
	20	5.5	0.9	5.1	0.9	4.6	0.8	4.2	0.3	7.0	0.9	6.6	0.9	6.1	0.8	5.7	0.3
	40	4.6	1.0	4.2	1.0	3.7	0.9	3.4	0.9	6.1	1.0	5.7	1.0	5.0	0.9	4.6	0.9
	60	4.1	1.1	3.7	1.1	3.3	1.0	3.0	0.9	5.5	1.1	5.0	1.1	4.4	1.0	4.0	0.9
	90	3.6	1.0	3.3	1.0	2.9	0.8	2.6	0.8	4.8	1.0	4.4	1.0	3.9	0.8	3.5	0.8

Roof Rafters : Wind Classification N1 - N3																	
Member size D x B (mm)	Roof Mass (kg/m²)	Rafter Spacing								Rafter Spacing							
		450		600		900		1200		450		600		900		1200	
		Maximum recommended Rafter Single Span and Cantilever (m)								Maximum recommended Rafter Continuous Span and Cantilever (m)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
170 x 45	10	6.8	0.3	6.6	0.2	6.1	0.2	5.5	0.2	8.5	0.3	8.2	0.2	7.1	0.2	6.2	0.2
	20	6.1	1.1	5.8	0.4	5.2	0.3	4.8	0.3	7.6	1.1	7.3	0.4	6.7	0.3	6.1	0.3
	40	5.2	1.2	4.8	1.1	4.2	1.1	3.9	1.0	6.7	1.2	6.3	1.1	5.7	1.1	5.2	1.0
	60	4.6	1.3	4.2	1.2	3.7	1.1	3.4	1.0	6.1	1.3	5.7	1.2	5.0	1.1	4.6	1.0
	90	4.1	1.2	3.7	1.1	3.3	0.9	3.0	0.9	5.5	1.2	5.0	1.1	4.4	0.9	4.0	0.9
200 x 45	10	7.6	0.4	7.3	0.3	6.8	0.2	6.5	0.2	9.4	0.4	8.8	0.3	7.7	0.2	7.0	0.2
	20	6.8	1.3	6.5	0.4	6.0	0.4	5.6	0.3	8.5	1.3	8.1	0.4	7.4	0.4	6.7	0.3
	40	6.0	1.4	5.6	1.3	5.0	1.3	4.5	1.2	7.5	1.4	7.1	1.3	6.5	1.3	6.1	1.2
	60	5.4	1.5	5.0	1.4	4.4	1.3	4.0	1.2	6.9	1.5	6.5	1.4	5.9	1.3	5.4	1.2
	90	4.8	1.4	4.4	1.3	3.8	1.1	3.5	1.0	6.3	1.4	5.9	1.3	5.2	1.1	4.7	1.0
240 x 45	10	8.5	0.4	8.2	0.4	7.7	0.3	7.4	0.2	10.2	0.4	9.3	0.4	8.2	0.3	7.5	0.2
	20	7.7	1.7	7.4	0.5	6.8	0.4	6.5	0.4	9.6	1.7	9.0	0.5	8.0	0.4	7.2	0.4
	40	6.8	1.8	6.5	1.7	5.9	1.5	5.4	1.5	8.5	1.8	8.1	1.7	7.4	1.5	6.8	1.5
	60	6.3	1.9	5.9	1.7	5.2	1.5	4.8	1.4	7.9	1.9	7.4	1.7	6.7	1.5	6.3	1.4
	90	5.7	1.7	5.2	1.5	4.6	1.3	4.2	1.2	7.2	1.7	6.7	1.5	6.1	1.3	5.7	1.2
300 x 45	10	9.7	0.6	9.4	0.5	8.9	0.4	8.6	0.3	10.8	0.6	10.0	0.5	8.8	0.4	8.1	0.3
	20	8.9	2.2	8.6	0.7	8.0	0.5	7.6	0.5	10.5	2.2	9.7	0.7	8.5	0.5	7.8	0.5
	40	8.0	2.3	7.6	2.2	6.9	2.0	6.5	1.9	9.9	2.3	9.1	2.2	8.1	2.0	7.3	1.9
	60	7.4	2.2	6.9	2.0	6.4	1.9	6.0	1.8	9.2	2.2	8.7	2.0	7.7	1.9	7.0	1.8
	90	6.8	2.0	6.4	1.9	5.7	1.7	5.3	1.5	8.5	2.0	7.9	1.9	7.0	1.7	6.4	1.5
360 x 45	10	10.8	0.8	10.5	0.6	10.0	0.5	8.6	0.6	11.4	0.8	10.5	0.6	9.3	0.5	8.5	0.6
	20	10.0	2.7	9.6	0.8	9.0	0.7	8.6	0.6	11.1	2.7	10.2	0.8	9.0	0.7	8.3	0.6
	40	9.0	2.7	8.6	2.5	7.9	2.3	7.4	2.2	10.5	2.7	9.7	2.5	8.5	2.3	7.8	2.2
	60	8.4	2.5	7.9	2.3	7.3	2.1	6.8	2.0	10.0	2.5	9.2	2.3	8.1	2.1	7.4	2.0
	90	7.7	2.3	7.3	2.1	6.6	2.0	6.2	1.8	9.1	2.3	8.3	2.1	7.4	2.0	6.8	1.8
400 x 45	10	11.5	0.9	11.2	0.7	10.0	0.7	8.6	0.8	11.8	0.9	10.8	0.7	9.6	0.7	8.8	0.8
	20	10.7	3.1	10.3	0.9	9.7	0.7	8.9	0.7	11.4	3.1	10.5	0.9	9.3	0.7	8.5	0.7
	40	9.7	2.9	9.2	2.7	8.5	2.5	8.0	2.4	10.8	2.9	10.0	2.7	8.8	2.5	8.0	2.4
	60	9.0	2.7	8.5	2.5	7.8	2.3	7.4	2.2	10.4	2.7	9.5	2.5	8.4	2.3	7.7	2.2
	90	8.3	2.5	7.8	2.3	7.2	2.1	6.7	2.0	9.3	2.5	8.6	2.3	7.6	2.1	7.0	2.0

Roof Rafters : Wind Classification N1 - N3																	
Member size D x B (mm)	Roof Mass (kg/m²)	Rafter Spacing								Rafter Spacing							
		450		600		900		1200		450		600		900		1200	
		Maximum recommended Rafter Single Span and Cantilever (m)								Maximum recommended Rafter Continuous Span and Cantilever (m)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
90 x 63	10	4.0	0.6	3.6	0.6	3.3	0.5	3.1	0.5	5.1	0.6	4.6	0.6	4.1	0.5	3.8	0.5
	20	3.7	0.6	3.5	0.6	3.1	0.6	2.8	0.5	5.0	0.6	4.6	0.6	4.1	0.6	3.8	0.5
	40	3.1	0.7	2.8	0.7	2.5	0.6	2.3	0.6	4.2	0.7	3.8	0.7	3.4	0.6	3.1	0.6
	60	2.7	0.7	2.5	0.7	2.2	0.6	2.0	0.6	3.7	0.7	3.4	0.7	3.0	0.6	2.7	0.6
	90	2.4	0.7	2.2	0.6	1.9	0.5	1.8	0.5	3.3	0.7	3.0	0.6	2.6	0.5	2.4	0.5
130 x 63	10	6.0	0.3	5.7	0.2	5.2	0.2	4.7	0.2	7.5	0.3	7.2	0.2	6.8	0.2	6.2	0.2
	20	5.2	0.9	4.9	0.9	4.4	0.8	4.1	0.8	6.8	0.9	6.4	0.9	5.9	0.8	5.5	0.8
	40	4.4	1.0	4.1	1.0	3.6	0.9	3.3	0.9	5.9	1.0	5.5	1.0	4.8	0.9	4.4	0.9
	60	3.9	1.1	3.6	1.0	3.2	0.9	2.9	0.8	5.3	1.1	4.8	1.0	4.3	0.9	3.9	0.8
	90	3.5	1.0	3.2	0.9	2.8	0.8	2.5	0.7	4.7	1.0	4.3	0.9	3.8	0.8	3.4	0.7
150 x 63	10	6.6	0.3	6.3	0.2	6.0	0.2	5.4	0.2	8.2	0.3	7.9	0.2	7.4	0.2	7.1	0.2
	20	6.0	1.1	5.6	1.0	5.0	1.0	4.7	1.0	7.4	1.1	7.1	1.0	6.6	1.0	6.2	1.0
	40	5.0	1.2	4.7	1.1	4.1	1.1	3.8	1.1	6.6	1.2	6.2	1.1	5.6	1.1	5.1	1.1
	60	4.5	1.3	4.1	1.2	3.7	1.1	3.3	1.0	6.0	1.3	5.6	1.2	4.9	1.1	4.5	1.0
	90	4.0	1.2	3.7	1.1	3.2	0.9	2.9	0.8	6.0	1.2	5.6	1.1	4.9	0.9	4.5	0.8
170 x 63	10	7.1	0.4	6.9	0.3	6.5	0.2	6.2	0.2	8.9	0.4	8.6	0.3	8.1	0.2	7.7	0.2
	20	6.5	1.3	6.2	1.2	5.7	0.4	5.2	0.3	8.1	1.3	7.7	1.2	7.2	0.4	6.8	0.3
	40	5.7	1.4	5.2	1.3	4.7	1.2	4.3	1.2	7.2	1.4	6.8	1.3	6.2	1.2	5.8	1.2
	60	5.1	1.5	4.7	1.4	4.1	1.2	3.8	1.1	6.6	1.5	6.2	1.4	5.6	1.2	5.1	1.1
	90	4.5	1.3	4.1	1.2	3.6	1.1	3.3	1.0	6.0	1.3	5.6	1.2	4.9	1.1	4.5	1.0
200 x 63	10	7.9	0.5	7.6	0.4	7.2	0.3	6.9	0.2	9.8	0.5	9.5	0.4	9.0	0.3	8.6	0.2
	20	7.2	1.6	6.9	1.5	6.4	0.4	6.1	0.4	9.0	1.6	8.6	1.5	8.0	0.4	7.6	0.4
	40	6.4	1.7	6.1	1.6	5.5	1.5	5.0	1.4	8.0	1.7	7.6	1.6	7.0	1.5	6.5	1.4
	60	5.9	1.7	5.5	1.6	4.9	1.4	4.4	1.3	7.4	1.7	7.0	1.6	6.4	1.4	6.0	1.3
	90	5.3	1.5	4.9	1.4	4.3	1.2	3.9	1.1	6.8	1.5	6.4	1.4	5.8	1.2	5.3	1.1
240 x 63	10	8.8	1.9	8.5	0.5	8.1	0.3	7.8	0.3	11.0	1.9	10.6	0.5	10.1	0.3	9.7	0.3
	20	8.1	2.0	7.8	1.8	7.3	0.5	6.9	0.4	10.1	2.0	9.7	1.8	9.1	0.5	8.6	0.4
	40	7.3	2.1	6.9	2.0	6.4	1.8	6.0	1.8	9.1	2.1	8.6	2.0	7.9	1.8	7.5	1.8
	60	6.7	2.0	6.4	1.9	5.8	1.7	5.3	1.6	8.4	2.0	7.9	1.9	7.3	1.7	6.8	1.6
	90	6.2	1.8	5.8	1.7	5.1	1.5	4.7	1.4	7.7	1.8	7.3	1.7	6.6	1.5	6.2	1.4

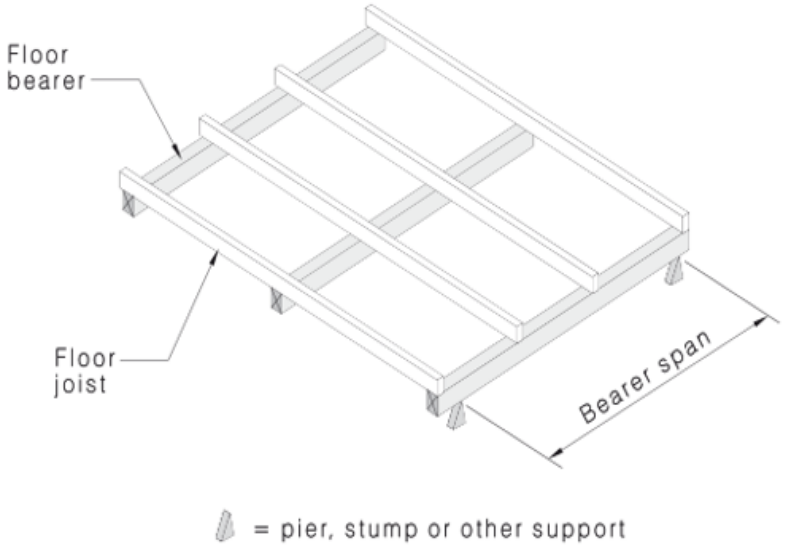
Roof Rafters : Wind Classification N1 - N3																	
Member size D x B (mm)	Roof Mass (kg/m²)	Rafter Spacing								Rafter Spacing							
		450		600		900		1200		450		600		900		1200	
		Maximum recommended Rafter Single Span and Cantilever (m)								Maximum recommended Rafter Continuous Span and Cantilever (m)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
300 x 63	10	10.0	2.5	9.8	0.6	9.3	0.5	9.0	0.4	-	-	-	0.6	11.7	0.5	11.1	0.4
	20	9.3	2.6	9.0	2.4	8.5	0.7	8.0	0.6	11.7	2.6	11.2	2.4	10.5	0.7	10.0	0.6
	40	8.5	2.5	8.0	2.4	7.4	2.2	7.0	2.1	10.5	2.5	10.0	2.4	9.3	2.2	8.8	2.1
	60	7.9	2.3	7.4	2.2	6.8	2.0	6.4	1.9	9.8	2.3	9.3	2.2	8.5	2.0	8.0	1.9
	90	7.3	2.1	6.8	2.0	6.3	1.8	5.8	1.7	9.1	2.1	8.5	2.0	7.8	1.8	7.3	1.7
360 x 63	10	11.1	3.1	10.9	0.8	10.5	0.6	10.1	0.5	-	-	-	-	-	-	11.9	0.5
	20	10.5	3.1	10.1	3.0	9.5	0.8	9.1	0.7	-	-	-	-	11.9	0.8	11.4	0.7
	40	9.5	2.8	9.1	2.7	8.5	2.5	8.0	2.4	11.9	2.8	11.4	2.7	10.6	2.5	10.0	2.4
	60	8.9	2.6	8.5	2.5	7.8	2.3	7.3	2.2	11.1	2.6	10.6	2.5	9.7	2.3	9.2	2.2
	90	8.3	2.4	7.8	2.3	7.2	2.1	6.7	2.0	10.3	2.4	9.7	2.3	8.9	2.1	8.4	2.0
400 x 63	10	11.8	3.5	11.6	0.9	11.2	0.7	10.8	0.5	-	-	-	-	-	-	-	-
	20	11.2	3.3	10.8	3.2	10.2	0.9	9.8	0.8	-	-	-	-	-	-	-	-
	40	10.2	3.0	9.8	2.9	9.1	2.7	8.6	2.5	-	-	-	-	11.3	2.7	10.7	2.5
	60	9.6	2.8	9.1	2.7	8.4	2.5	7.9	2.3	11.9	2.8	11.3	2.7	10.5	2.5	9.9	2.3
	90	8.9	2.6	8.4	2.5	7.7	2.3	7.2	2.1	11.1	2.6	10.5	2.5	9.6	2.3	9.0	2.1
450 x 63	10	-	-	-	-	-	-	11.6	0.6	-	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	10.6	0.9	-	-	-	-	-	-	-	-
	40	11.0	3.3	10.6	3.1	9.9	2.9	9.3	2.8	-	-	-	-	-	-	11.6	2.8
	60	10.4	3.1	9.9	2.9	9.1	2.7	8.6	2.5	-	-	-	-	11.4	2.7	10.7	2.5
	90	9.7	2.9	9.1	2.7	8.4	2.5	7.9	2.3	-	-	11.4	2.7	10.5	2.5	9.8	2.3
400 x 63	10	11.8	3.5	11.6	0.9	11.2	0.7	10.8	0.5	-	-	-	-	-	-	-	-
	20	11.2	3.3	10.8	3.2	10.2	0.9	9.8	0.8	-	-	-	-	-	-	11.8	0.8
	40	10.2	3.0	9.8	2.9	9.1	2.7	8.6	2.5	-	-	-	-	11.3	2.7	10.7	2.5
	60	9.6	2.8	9.1	2.7	8.4	2.5	7.9	2.3	11.9	2.8	11.3	2.7	10.5	2.5	9.9	2.3
	90	8.9	2.6	8.4	2.5	7.7	2.3	7.2	2.1	11.1	2.6	10.5	2.5	9.6	2.3	9.0	2.1
450 x 63	10	-	-	-	-	-	-	11.6	0.6	-	-	-	-	-	0.8	-	-
	20	-	-	11.6	3.4	11.0	1.0	10.6	0.9	-	-	-	-	-	1.0	-	-
	40	11.0	3.3	10.6	3.1	9.9	2.9	9.3	2.8	-	-	-	-	-	2.9	11.6	2.8
	60	10.4	3.1	9.9	2.9	9.1	2.7	8.6	2.5	-	-	-	-	11.4	2.7	10.7	2.5
	90	9.7	2.9	9.1	2.7	8.4	2.5	7.9	2.3	-	-	11.4	2.7	10.5	2.5	9.8	2.3

Lengths over 12 meters are not available on the market and are marked with -.

KERTO LVL E13.2: BEARERS - SUPPORTING FLOOR LOADS ONLY

Note:

1. Bearers supporting joists loads only. Including Floor mass up to 40kg/m2.
2. AS 1720.3 Loading Conditions: permanent - self weight + 40 kg/m2 +0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN
3. The calculated Spans do not include balconies or decks, as defined in AS 1720.3
4. Support bearing lengths: typically 70mm at end supports and 90mm at intermediate supports for continuous span, except where otherwise indicated by an asterisk (*) to the span.
5. For continuous span, the bearing length at end supports must be at least one third of the bearing length indicated for the intermediate support but not less than 70mm.
6. The span lengths represent the Effective Span Length, as defined in AS 1720.3.
7. A continuous span only applies when the smaller of the spans is no less than half the larger span. Where this does not apply; both spans are to be treated as singles spans or further design analysis is required.
8. The spans are based on a capacity factor (ø) of 0.95, and for Category 1 according to Table 2.1 in AS1720.1



Metsa Kerto LVL, bearers in-build application.

KERTO LVL E13.2: BEARERS - SUPPORTING FLOOR LOADS ONLY

Floor bearers supporting floor loads only									
Member size D x B (mm)	Floor Load Width								
	1200	1800	2400	3000	3600	4200	4800	5400	6000
	Maximum recommended Bearer Span (m) Single Span								
90 x 45	1.5	1.3	1.2	1.1	1.0	1.0	[-]	[-]	[-]
130 x 45	2.2	2.0	1.8	1.6	1.5	1.4	1.4	1.3	1.3
150 x 45	2.6	2.3	2.0	1.9	1.8	1.7	1.6	1.5	1.5
170 x 45	2.9	2.6	2.3	2.1	2.0	1.9	1.8	1.7	1.6
200 x 45	3.5	3.0	2.7	2.5	2.4	2.2	2.1	2.0	1.9
240 x 45	4.0	3.6	3.3	3.0	2.8	2.7	2.6	2.4	2.3
300 x 45	4.7	4.3	4.0	3.7	3.6	3.4	3.2	3.1 (*)	2.9 (*)
360 x 45	5.4	4.9	4.5	4.3	4.1	3.9 (*)	3.8 (*)	3.6 (*)	3.4 (*)
400 x 45	5.8	5.3	4.9	4.6	4.4	4.2 (*)	4.1 (*)	3.9 (*)	3.7 (*)
90 x 63	1.7	1.5	1.4	1.2	1.2	1.1	1.0	1.0	1.0
130 x 63	2.5	2.2	2.0	1.8	1.7	1.6	1.5	1.5	1.4
150 x 63	2.9	2.5	2.3	2.1	2.0	1.9	1.8	1.7	1.6
170 x 63	3.3	2.9	2.6	2.4	2.2	2.1	2.0	1.9	1.9
200 x 63	3.8	3.4	3.1	2.8	2.6	2.5	2.4	2.3	2.2
240 x 63	4.3	3.9	3.6	3.4	3.2	3.0	2.9	2.7	2.6
300 x 63	5.1	4.6	4.3	4.1	3.9	3.7	3.6	3.4	3.3
360 x 63	5.9	5.3	4.9	4.7	4.4	4.3	4.1	4.0	3.9 (*)
400 x 63	6.3	5.7	5.3	5.0	4.8	4.6	4.4	4.3 (*)	4.2 (*)
450 x 63	6.9	6.3	5.8	5.5	5.2	5.0	4.9 (*)	4.7 (*)	4.6 (*)

Asterisk (*) indicates longer support bearing lengths may be required depending on the chosen span. This shall be determined by the Professional Engineer.

KERTO LVL E13.2: BEARERS - SUPPORTING FLOOR LOADS ONLY

Floor bearers supporting floor loads only									
Member size D x B (mm)	Floor Load Width								
	1200	1800	2400	3000	3600	4200	4800	5400	6000
	Maximum recommended Bearer Span (m) Continuous Span								
90 x 45	1.9	1.7	1.5	1.4	1.3	1.1	[-]	[-]	[-]
130 x 45	2.8	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.1
150 x 45	3.2	2.8	2.6	2.3	2.1	1.9	1.6	1.4	1.3
170 x 45	3.5	3.2	2.9	2.6	2.4 (*)	2.1 (*)	1.8 (*)	1.6 (*)	1.4 (*)
200 x 45	4.0	3.6	3.3	2.9 (*)	2.7 (*)	2.5 (*)	2.2 (*)	1.9 (*)	1.7 (*)
240 x 45	4.6	4.1	3.7 (*)	3.3 (*)	3.1 (*)	2.9 (*)	2.6 (*)	2.3 (*)	2.0 (*)
300 x 45	5.4	4.7	4.2 (*)	3.8 (*)	3.5 (*)	3.3 (*)	3.1 (*)	2.9 (*)	2.6 (*)
360 x 45	5.8	5.1 (*)	4.6 (*)	4.2 (*)	3.9 (*)	3.7 (*)	3.5 (*)	3.3 (*)	3.1 (*)
400 x 45	6.0	5.3 (*)	4.8 (*)	4.4 (*)	4.1 (*)	3.9 (*)	3.7 (*)	3.5 (*)	3.4 (*)
90 x 63	2.2	1.9	1.7	1.6	1.5	1.4	1.3	1.2	1.1
130 x 63	3.1	2.7	2.5	2.3	2.2	2.0	1.9	1.7	1.5
150 x 63	3.5	3.2	2.9	2.7	2.5	2.3	2.1	2.0	1.8
170 x 63	3.9	3.5	3.2	3.0	2.8	2.6	2.4	2.3 (*)	2.0 (*)
200 x 63	4.4	3.9	3.7	3.5	3.3	3.0 (*)	2.8 (*)	2.6 (*)	2.4 (*)
240 x 63	5.0	4.5	4.2	4.0	3.8 (*)	3.6 (*)	3.3 (*)	3.1 (*)	2.9 (*)
300 x 63	5.9	5.4	5.0	4.7 (*)	4.5 (*)	4.3 (*)	4.0 (*)	3.8 (*)	3.6 (*)
360 x 63	6.8	6.1	5.7 (*)	5.4 (*)	5.1 (*)	4.8 (*)	4.5 (*)	4.3 (*)	4.1 (*)
400 x 63	7.4	6.7 (*)	6.2 (*)	5.9 (*)	5.5 (*)	5.1 (*)	4.8 (*)	4.6 (*)	4.4 (*)
450 x 63	8.1	7.3 (*)	6.8 (*)	6.3 (*)	5.8 (*)	5.5 (*)	5.2 (*)	4.9 (*)	4.7 (*)

Asterisk (*) indicates longer support bearing lengths may be required depending on the chosen span. This shall be determined by the Professional Engineer.

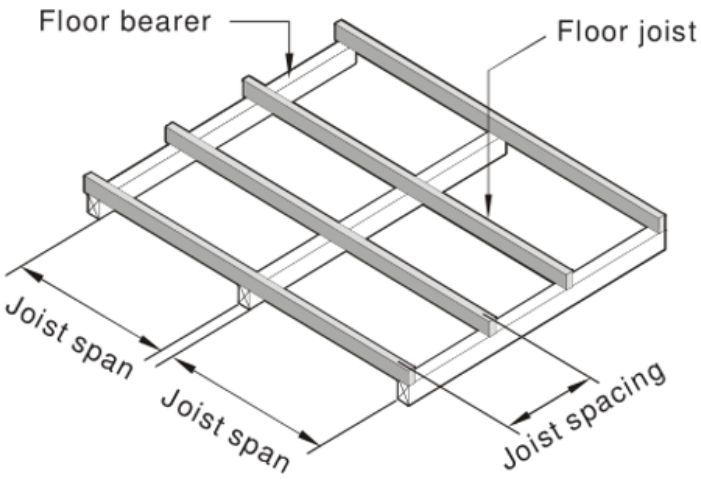
The values highlighted are dependent on the slenderness calculation. Lengths greater than the highlighted values may be obtained with the adoption of appropriate restraint systems. This shall be determined, and further design analyses carried out by the Professional Engineer.

KERTO LVL E13.2: FLOOR JOIST - SUPPORTING FLOOR LOADS ONLY

Notes:

FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY. FLOOR MASS UP TO 40kα/m2

1. Joists supporting floor loads only. Including Floor mass up to 40kg/m2.
2. AS 1720.3 Loading Conditions: permanent - self weight + 40 kg/m2 +0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN
3. The calculated Spans do not include balconies or decks, as defined in AS 1720.3
4. Cantilever spans shall not exceed one half of the installed backspan. The chosen backspan and cantilever configuration shall be confirmed as compliant with the serviceability criteria outlined in AS 1720.3.
5. Joists should be blocked at supports as per AS1684.2.
6. The span lengths represent the Effective Span Length, as defined in AS 1720.3. Cantilevers shall have fascia-board / rim-board installed to the ends of the cantilevered joist.
7. A continuous span only applies when the smaller of the spans is no less than half the larger span. Where this does not apply; both spans are to be treated as singles spans or further design analysis is required.
8. The spans are based on a capacity factor (ø) of 0.95, and for Category 1 according to Table 2.1 in AS1720.



Metsa Kerto LVL, in-build application.

KERTO LVL E13.2: FLOOR JOIST - SUPPORTING FLOOR LOADS ONLY

Notes:

FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY. FLOOR MASS UP TO 40kα/m2

Floor Joists Supporting Floor Loads Only								
Member size D x B (mm)	Floor Joist Spacing							
	300		400		450		600	
	Maximum recommended Floor Joist Single Span and Cantilever (m)							
	Span	Cant.	Span	Cant.	Span	Cant.	Span	Cant.
90 x 36	1.9	0.4	1.6	0.3	1.6	0.3	1.5	0.2
130 x 36	3.3	0.7	2.5	0.6	2.4	0.6	2.3	0.5
150 x 36	3.7	0.9	3.0	0.7	2.8	0.7	2.7	0.6
170 x 36	4.1	1.0	3.5	0.8	3.3	0.8	3.1	0.7
200 x 36	4.6	1.1	4.2	1.0	3.9	0.9	3.7	0.9
240 x 36	5.3	1.3	5.0	1.2	4.8	1.2	4.5	1.1
300 x 36	6.3	1.5	5.9	1.4	5.7	1.4	5.3	1.3
90 x 45	2.1	0.5	1.8	0.4	1.7	0.4	1.6	0.3
130 x 45	3.5	0.8	2.7	0.6	2.6	0.6	2.5	0.6
150 x 45	4.0	1.0	3.3	0.8	3.1	0.7	2.9	0.7
170 x 45	4.3	1.0	3.8	0.9	3.6	0.9	3.4	0.8
200 x 45	4.9	1.2	4.6	1.1	4.3	1.0	4.0	1.0
240 x 45	5.6	1.4	5.2	1.3	5.1	1.2	4.7	1.1
300 x 45	6.7	1.6	6.2	1.5	6.0	1.5	5.6	1.4
360 x 45	7.7	1.9	7.1	1.7	6.9	1.7	6.4	1.6
90 x 63	2.5	0.5	2.0	0.5	1.9	0.4	1.9	0.4
130 x 63	3.9	0.9	3.1	0.7	3.0	0.7	2.8	0.7
150 x 63	4.3	1.0	3.7	0.9	3.5	0.8	3.3	0.8
170 x 63	4.7	1.1	4.4	1.1	4.1	1.0	3.8	0.9
200 x 63	5.4	1.3	5.0	1.2	4.8	1.2	4.5	1.1
240 x 63	6.1	1.5	5.7	1.4	5.5	1.3	5.2	1.3
300 x 63	7.3	1.8	6.8	1.7	6.6	1.6	6.1	1.5
360 x 63	8.3	2.0	7.8	1.9	7.5	1.8	7.0	1.7

KERTO LVL E13.2: FLOOR JOIST - SUPPORTING FLOOR LOADS ONLY

Notes:

FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY. FLOOR MASS UP TO 40kα/m2

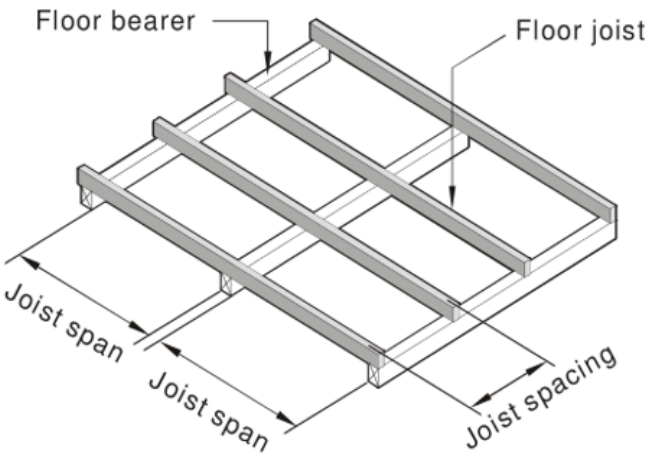
Floor Joists Supporting Floor Loads Only								
Member size D x B (mm)	Floor Joist Spacing							
	300		400		450		600	
	Maximum recommended Floor Joist Continuous Span and Cantilever (m)							
	Span	Cant.	Span	Cant.	Span	Cant.	Span	Cant.
90 x 36	2.6	0.4	2.0	0.3	1.9	0.3	1.8	0.2
130 x 36	3.8	0.7	3.1	0.6	2.9	0.6	2.7	0.5
150 x 36	4.3	0.9	3.7	0.7	3.4	0.7	3.2	0.6
170 x 36	4.8	1.0	4.4	0.8	3.9	0.8	3.6	0.7
200 x 36	5.4	1.1	5.0	1.0	4.8	0.9	4.4	0.9
240 x 36	6.2	1.3	5.7	1.2	5.6	1.2	5.2	1.1
300 x 36	6.9	1.5	6.3	1.4	6.1	1.4	5.5	1.3
90 x 45	2.8	0.5	2.1	0.4	2.0	0.4	1.9	0.3
130 x 45	4.1	0.8	3.4	0.6	3.1	0.6	2.9	0.6
150 x 45	4.6	1.0	4.1	0.8	3.7	0.7	3.4	0.7
170 x 45	5.0	1.0	4.7	0.9	4.3	0.9	4.0	0.8
200 x 45	5.7	1.2	5.3	1.1	5.1	1.0	4.8	1.0
240 x 45	6.5	1.4	6.1	1.3	5.9	1.2	5.5	1.1
300 x 45	7.7	1.6	7.2	1.5	7.0	1.5	6.5	1.4
360 x 45	8.9	1.9	8.2	1.7	8.0	1.7	7.3	1.6
90 x 63	3.2	0.5	2.4	0.5	2.3	0.4	2.2	0.4
130 x 63	4.5	0.9	3.9	0.7	3.6	0.7	3.3	0.7
150 x 63	5.0	1.0	4.6	0.9	4.3	0.8	3.9	0.8
170 x 63	5.5	1.1	5.1	1.1	4.9	1.0	4.5	0.9
200 x 63	6.2	1.3	5.8	1.2	5.6	1.2	5.2	1.1
240 x 63	7.1	1.5	6.6	1.4	6.4	1.3	6.0	1.3
300 x 63	8.4	1.8	7.8	1.7	7.6	1.6	7.1	1.5
360 x 63	9.7	2.0	9.0	1.9	8.7	1.8	8.1	1.7

KERTO LVL E13.2: FLOOR JOIST - SUPPORTING FLOOR LOADS ONLY

Notes:

FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY, FLOOR MASS UP TO 100kg/m2 (1/2)

1. Joists supporting floor loads only. Including Floor mass up to 100kg/m2.
2. AS 1720.3 Loading Conditions: permanent - self weight + 100 kg/m2 +0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN
3. The calculated Spans do not include balconies or decks, as defined in AS 1720.3
4. Cantilever spans shall not exceed one half of the installed backspan. The chosen backspan and cantilever configuration shall be confirmed as compliant with the serviceability criteria outlined in AS 1720.3.
5. Joists should be blocked at supports as per AS1684.2.
6. The span lengths represent the Effective Span Length, as defined in AS 1720.3. Cantilevers shall have fascia-board / rimboard installed to the ends of the cantilevered joist.
7. A continuous span only applies when the smaller of the spans is no less than half the larger span. Where this does not apply; both spans are to be treated as singles spans or further design analysis is required.
8. The spans are based on a capacity factor (ø) of 0.95, and for Category 1 according to Table 2.1 in AS1720.1



Metsa Kerto LVL, in-build application.

KERTO LVL E13.2: FLOOR JOIST - SUPPORTING FLOOR LOADS ONLY

Notes:

FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY, FLOOR MASS UP TO 100kg/m2 (1/2)

Floor Joists Supporting Floor Loads Only								
Member size D x B (mm)	Floor Joist Spacing							
	300		400		450		600	
	Maximum recommended Floor Joist Single Span and Cantilever (m)							
	Span	Cant.	Span	Cant.	Span	Cant.	Span	Cant.
90 x 36	1.9	0.4	1.6	0.3	1.6	0.3	1.5	0.2
130 x 36	2.8	0.7	2.5	0.6	2.4	0.6	2.2	0.5
150 x 36	3.2	0.8	3.0	0.7	2.8	0.7	2.6	0.6
170 x 36	3.7	0.9	3.4	0.8	3.2	0.8	2.9	0.7
200 x 36	4.3	1.0	3.9	0.9	3.8	0.9	3.5	0.8
240 x 36	5.0	1.2	4.7	1.1	4.5	1.1	4.2	1.0
300 x 36	5.9	1.4	5.5	1.3	5.3	1.3	5.0	1.2
90 x 45	2.1	0.5	1.8	0.4	1.7	0.4	1.6	0.3
130 x 45	3.0	0.7	2.7	0.6	2.6	0.6	2.4	0.6
150 x 45	3.5	0.8	3.2	0.8	3.1	0.7	2.8	0.7
170 x 45	3.9	0.9	3.6	0.9	3.5	0.8	3.2	0.8
200 x 45	4.6	1.1	4.2	1.0	4.1	1.0	3.7	0.9
240 x 45	5.2	1.3	4.9	1.2	4.8	1.2	4.5	1.1
300 x 45	6.2	1.5	5.8	1.4	5.6	1.4	5.3	1.3
360 x 45	7.0	1.7	6.6	1.6	6.4	1.6	6.0	1.5
90 x 63	2.3	0.5	2.0	0.5	1.9	0.4	1.9	0.4
130 x 63	3.4	0.8	3.1	0.7	3.0	0.7	2.7	0.6
150 x 63	3.9	0.9	3.5	0.8	3.4	0.8	3.1	0.7
170 x 63	4.4	1.1	4.0	1.0	3.9	0.9	3.5	0.8
200 x 63	4.9	1.2	4.6	1.1	4.5	1.1	4.1	1.0
240 x 63	5.6	1.4	5.3	1.3	5.2	1.3	4.8	1.2
300 x 63	6.6	1.6	6.2	1.5	6.1	1.5	5.7	1.4
360 x 63	7.5	1.8	7.1	1.7	6.9	1.7	6.5	1.6

KERTO LVL E13.2: FLOOR JOIST - SUPPORTING FLOOR LOADS ONLY

Notes:

FLOOR JOISTS SUPPORTING FLOOR LOADS ONLY, FLOOR MASS UP TO 100kg/m2 (1/2)

Floor Joists Supporting Floor Loads Only								
Member size D x B (mm)	Floor Joist Spacing							
	300		400		450		600	
	Maximum recommended Floor Joist Continuous Span and Cantilever (m)							
	Span	Cant.	Span	Cant.	Span	Cant.	Span	Cant.
90 x 36	2.6	0.4	2.0	0.3	1.9	0.3	1.8	0.2
130 x 36	3.8	0.7	3.1	0.6	2.9	0.6	2.7	0.5
150 x 36	4.3	0.8	3.7	0.7	3.4	0.7	3.2	0.6
170 x 36	4.8	0.9	4.4	0.8	3.9	0.8	3.6	0.7
200 x 36	5.4	1.0	5.0	0.9	4.8	0.9	4.4	0.8
240 x 36	6.0	1.2	5.4	1.1	5.2	1.1	4.8	1.0
300 x 36	6.4	1.4	5.9	1.3	5.6	1.3	5.1	1.2
90 x 45	2.8	0.5	2.1	0.4	2.0	0.4	1.9	0.3
130 x 45	4.1	0.7	3.4	0.6	3.1	0.6	2.9	0.6
150 x 45	4.6	0.8	4.1	0.8	3.7	0.7	3.4	0.7
170 x 45	5.0	0.9	4.7	0.9	4.3	0.8	4.0	0.8
200 x 45	5.7	1.1	5.3	1.0	5.1	1.0	4.8	0.9
240 x 45	6.5	1.3	6.1	1.2	5.9	1.2	5.5	1.1
300 x 45	7.7	1.5	7.2	1.4	7.0	1.4	6.4	1.3
360 x 45	8.5	1.7	7.7	1.6	7.4	1.6	6.8	1.5
90 x 63	3.1	0.5	2.4	0.5	2.3	0.4	2.2	0.4
130 x 63	4.5	0.8	3.9	0.7	3.6	0.7	3.3	0.6
150 x 63	5.0	0.9	4.6	0.8	4.3	0.8	3.9	0.7
170 x 63	5.5	1.1	5.1	1.0	4.9	0.9	4.5	0.8
200 x 63	6.2	1.2	5.8	1.1	5.6	1.1	5.2	1.0
240 x 63	7.0	1.4	6.6	1.3	6.4	1.3	6.0	1.2
300 x 63	8.3	1.6	7.8	1.5	7.6	1.5	7.1	1.4
360 x 63	9.4	1.8	8.9	1.7	8.6	1.7	8.1	1.6

GUIDANCE AND CONSIDERATIONS

Use of Span Tables and Data

- The Span Tables and other technical data provided in this report are only applicable to Metsa Kerto LVL S-Beam E13.2 product series. Based on the characteristic material properties provided by Metsa Wood. The information and Span Tables should not be used for substitute products.
- The values listed apply only when the moisture content of the LVL is below 15% in service and are for “on edge” orientation of the LVL section. Other conditions require further design analyses and shall be carried out by a Professional Engineer.

Basis of Design

- The design criteria used to develop the Span Tables are based on the assumptions listed in AS1720.3 - Timber structures. Part 3: Design criteria for timber-framed residential buildings. and its subsequent referenced standards.
- The design loads used to determine member sizes listed in the Span Tables are as per AS1720.3 - Timber structures. Part 3: Design criteria for timber-framed residential buildings. and are described in AS1720.3 Clause 1.4.9.
- Design load limitations for each of the above load or load combination cases are also as per AS1720.3 - Timber structures. Part 3: Design criteria for timber framed residential buildings Clause 1.4.9.

Wind loading

- The spans given in the Span Tables have been developed for the N3 design wind classification in accordance with provisions presented in AS1720.3 - Timber structures. Part 3: Design criteria for timber framed residential buildings. For other classifications. further design analyses are required for the specific conditions and requirements.

Balconies, decks and verandahs

- The Span Tables do not include balconies. decks. and verandahs. as defined in AS1720.3 - Timber structures. Part 3: Design criteria for timber framed residential buildings. For these situations. further detailed analyses are required.

Design Capacity Factor (ø)

- The capacity factor (ø) used to calculate the design capacity of a structural framing member listed in the Span Tables is determined in accordance with Table 2.1 in AS1720.1 – Timber structures. Part 1: Design methods. and taken as ø = 0.95. for Category 1. In cases where the responsible Professional Engineer deems that the conditions of Category 1 do not apply. an alternative suitable category and design capacity factor shall be determined and adopted in further design analyses.

Terminology. Definitions and Notations Used in these Span Tables

- The terminology. definitions and notations used in this Report and accompanying Span Tables are in accordance with AS1720.3 - Timber structures. Part 3: Design criteria for timber-framed residential buildings. and consistent with AS1684.2 - Residential timber-framed construction. Part 2: Non-cyclonic areas.

Lateral Restraint. Support and Stability

- Methods of developing lateral restraint and providing adequate support. adequate anchorage against wind uplift. and overall structural stability are outside the scope of this Report and Calculations. Information on the above matters can be obtained from AS 1684 Residential timber-framed construction and determined by a Professional Engineer experienced in timber construction.
- Some values in the Span Tables are marked with an asterisk (*). This indicates that longer support bearing lengths may be required dependent on the required span. This shall be determined by the responsible Professional Engineer for the chosen span lengths.

Span Definition

- The span lengths in the Span Tables represent the Effective Span Length. as defined in AS1720.3 - Timber structures. Part 3: Design criteria for timber-framed residential buildings. For rafters. the spans and lengths are considered to be measured along the length of the rafter.
- A continuous span only applies when the smaller of the spans is no less than half the larger span. Where this does not apply. Both spans are to be treated as singles spans or further design analysis is required.

Kerto® LVL

Metsä Kerto® LVL is made of 3 mm thick strength graded softwood veneers. The grain direction of all the veneers is the same. The veneers are bonded with weather and boil resistant phenol formaldehyde adhesive.

Kero LVL beams can be used both as horizontal and vertical bearers in various construction applications. LVL beam has excellent strength-to-weight ratio which allows long spans with minimal deflection. Installation can be carried out without any heavy machinery, even in confined spaces. Applications: Rafters, Floor Joists, Bearers

APPROVALS AND DESIGN PROPERTIES

Kerto LVL beam is CE and UKCA marked and the design properties are determined according to standard EN 14374. The design properties given in the Declaration of Performance (DoP) and in the UK Declaration of Conformity (UK DoC) are to be used for structural calculations with EN 1995 (Eurocode 5). The DoP documents can be downloaded from www.metsawood.com/dop and the UK DoC documents can be downloaded from www.metsawood.com/ukdoc.

LVL beam has also Eurofins product certificate and national approvals in USA, Norway, Australia, Germany and Japan. Design properties for structural design outside Europe are given in the related approval documents.

Kerto LVL production is managed according to the principles of standard ISO 9001. The quality and the constancy of performance of the product is controlled by regular third party inspections and audits.

OVERALL DIMENSIONS

	MINIMUM (mm)	MAXIMUM (mm)
Thickness	27	75
Width/height	40	2 500
Length	2 000*	25 000**

* Short lengths are available on request (< 2 000 mm).
** For products wider than 1 830 mm, maximum length is 20 000 mm.

STANDARD TOLERANCES

	SIZE	MINIMUM	MAXIMUM
Thickness	≤ 27 mm	- 1.0 mm	+ 1.0 mm
	27 < t ≤ 57 mm	- 2.0 mm	+ 2.0 mm
	t > 57 mm	- 3.0 mm	+ 3.0 mm
Width/height	< 400 mm	- 2.0 mm	+ 2.0 mm
	≥ 400 mm	- 0,5%	+ 0,5%
Length	All	- 5.0 mm	+ 5.0 mm

In moisture content of 10 ±2%. Special tolerances are available on request.

SANDING OF KERTO LVL AFFECTS PRODUCT THICKNESSES

Optical sanding reduces the original nominal thickness by approximately 2 mm. The standard thickness tolerances apply to the sanded nominal thickness. Structural design shall be made according to the sanded nominal thickness.

Calibrated sanding reduces the original nominal thickness by approximately 3 mm. The thickness tolerance of calibrated sanded products is ± 0.5 mm from the target thickness. The dark glue line may become visible as it is allowed to sand through the face veneers. Structural design shall be made according to the sanded nominal thickness.

BONDING

Kerto LVL is bonded with a weather- and boil-resistant phenol formaldehyde adhesive. The gluing meets the requirements of the standard EN 14374. The face veneer scarf joints on the front side of the product are glued with colourless adhesive.During hot pressing the adhesive cures as thermoset plastic, and therefore is inert and non-hazardous to humans and animals.

FORMALDEHYDE EMISSIONS

Determined according to EN 717-1, the formaldehyde emitted by Kerto LVL falls far below the Class E1 requirement of ≤ 0.100 ppm and fulfils also the most stringent requirements in the world (≤ 0.030 ppm). The formaldehyde emission of Kerto LVL is approximately 0.018 ppm.

FURTHER PROCESSING

Kerto LVL beam can be further processed in various ways according to end-use requirements.

Sanding	Optical sanding, 2 sided only Calibrated sanding, 2 sided only
Machining	Special sizes and shapes, notches and holes
Multiple-gluing (GLVL)	Heavy duty beams from 78 mm up to 144 mm, beams above 144 mm available on request - not CE marked
Temporary weather protection	WeatherGuard - up to width 610 mm
Treatment against mould	MouldGuard
Treatment against termites	H2S treatment (Australia only)

STANDARDS

The capacity tables and standard designs in this brochure have been prepared in accordance with the following Australian standards:

- AS 1720.3:2016 Timber Structures Design Criteria For Timber-Framed Residential Buildings.
- AS 1720.1:2010 Timber Structures Design Methods.
- AS 4055 Wind Loads For Housing.
- AS/NZS 4357.0 Structural Laminated Veneer Lumber Specifications.
- AS/NZS 4063 Characterisation Of Structural Timber Test Methods.

TRANSPORT, HANDLING AND STORAGE

Kerto® LVL products like all other engineered wood products must be handled and stored properly and carefully.

Incorrect handling and storage may introduce defects on the product's surfaces, edges or corners. Furthermore, the dimensional stability of the product may suffer.

TRANSPORT

While transporting or storing the product, increased moisture caused by rain or splashing must be avoided. If Kerto LVL products are moved with a forklift truck, wide enough forks must be used in order to avoid damaging the product. When lifting several packs at a time, the distance between forks must be wide enough to ensure safe lifting. Surface-treated products should be delivered direct to site without additional, unnecessary off-loading during delivery.

STORAGE

Kerto LVL products must be stored under cover. When storing the products temporarily on site, a solid, straight and dry platform should be used. The height of ground bearers must be at least 30 cm. To avoid twisting of the product, the bearers between packs must be aligned vertically with the ground bearing timbers.

The plastic wrapping of each pack must be cut open from underneath to enable moisture to evaporate from the bundles. If the products are stored on site for longer than one week, the bundles must be covered with an additional protective covering. Conditions of the products and protective cover must be monitored regularly during storage.

HANDLING

Kerto LVL product packs may be unloaded on site with either a forklift or a crane. When unloading with a forklift, follow the instructions given in chapter 'Transport'. Approved webbing slings must be used if unloading with crane. It is forbidden to use chains or wires.

If unloading is done manually, the pack is opened and the products are carried one-by-one. While cutting the banding, beware of band's ends. Kerto LVL products should not be dragged or dropped.

Kerto LVL is a light-weight material and is easy to shape, which means notable time and cost savings in construction. Kerto LVL products can be processed with conventional wood working and power tools. There is no need for separate specialist tools.

Surface-treated products should be unloaded individually. If needed, a cellular plastic padding that does not stain, should be used under the webbing slings.

OTHER METSA PRODUCTS AVAILABLE

KERTO® LVL E14

Metsä Kerto® LVL combines excellent technical performance with ease of use. Its essential qualities include strength and rigidity, dimensional stability, and lightweight. Responsibly & sustainably certified.

- Kerto LVL products are CE and UKCA marked, and design to EN 14374 standards.
- Kerto LVL AS/ANZ 4357.0 Structural LVL compliant.
- Kerto LVL AS1720.1 Timber Stress Grade compliant.

KERTO® LVL E 9.2 T-STUD

Metsä Kerto LVL E9.2 T-Stud is a perfect product for load bearing and non-load-bearing, internal and external walls. With excellent strength to weight ratio, is dimensionally stable and easy to fasten and drill.

- Kerto LVL T-Stud is CE-marked
- EN 14374 for structural design according to the Eurocodes
- ISO 9001:2008
- Kerto LVL E9.2 T-Stud compliant to AS/NZS 4357

FINNJOIST®

Metsä Finnjoists, deliver strength and rigidity, virtually eradicating floor movement and its associated problems, resulting in greater floor performance. Responsibly & sustainably certified.

- Kerto LVL products are CE and UKCA marked, and design to EN 14374 standards.
- Kerto LVL AS/ANZ 4357.0 Structural LVL compliant.
- Kerto LVL AS1720.1 Timber Stress Grade compliant.
- Finnjoist is CE marked and the design properties are determined according to ETA 02/0026.
- Finnjoists have BM TRADA Q-mark certificate.
- Kerto LVL and Finnjoist production is to ISO 9001 Quality Assurance.
- ISO 14001 Environmental Management standards.
- PEFC Certified.

ATS BUILDING PRODUCTS
HEAD OFFICE
157 Briens Road Northmead
T: +61 2 9630 5622
E: sales@atsbp.com

ATSBP.COM

1800 577 551

ATS LOCATIONS

NSW
157 Briens Road Northmead NSW 2152

NATIONAL DC
Moorebank Logistic Park
4 Tiber Place Moorebank NSW 2127

VIC
372 Lower Dandenong Road Braeside VIC 3195

QLD
2/177 Jackson Road Sunnybank QLD 4109

SA
48 Lipson Street Port Adelaide SA 5105

Metsä Wood is a wood products company delivering service-oriented solutions developed in collaboration with its customers. Its premium solutions are based on ecological, high quality Nordic wood as a raw material.

Wood is the only building material that is truly renewable if well managed. Forest certification schemes give assurance that the timber is legal and from sustainable sources. Metsä Wood sources certified timber over uncertified and is an approved Chain of Custody supplier.

The photographs in this brochure are for illustration purposes only.

Metsä Wood reserves the right to change the range without notice.

Every effort has been made to ensure that colours are accurate within the limitations of natural lighting conditions and the four colour printing process.

Kerto® & Finnjoist® are CE compliant.

KERTO LVL PRODUCT MANUAL JUNE 2025